

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



10/542907



(43) International Publication Date
5 August 2004 (05.08.2004)

PCT

(10) International Publication Number
WO 2004/066479 A1

(51) International Patent Classification⁷: H02M 3/156, G05F 1/10

(21) International Application Number:
PCT/IB2004/050023

(22) International Filing Date: 14 January 2004 (14.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03100131.6 23 January 2003 (23.01.2003) EP

(71) Applicant (for all designated States except US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): DE BOER, Jan, R. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agent: HESSELMANN, Gerardus, J., M.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

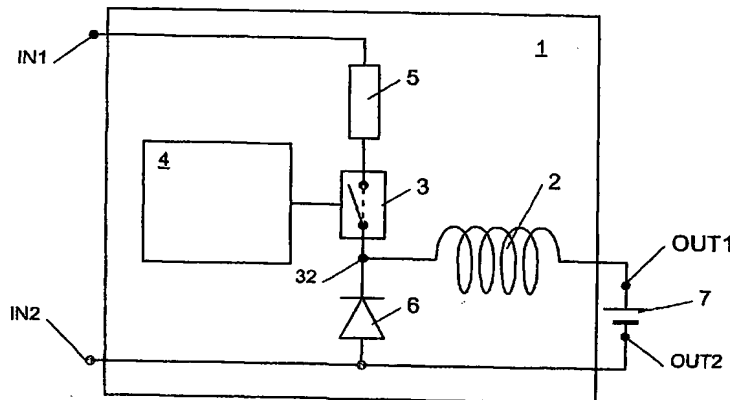
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: ELECTRICAL CONVERTER FOR CONVERTING ELECTRICAL POWER



(57) **Abstract:** An electrical converter (1) comprising a converter input (IN1, IN2) for receiving electrical power; a converter output (OUT1, OUT2) for releasing electrical power; an electrical energy storage device (2) having a storage input connected to a converter input (IN1, IN2) and having a storage output connected to a converter output (OUT1, OUT2). During a primary stroke period (t_{prim}) electrical energy is stored from the received electrical power, and during a secondary stroke period (t_{sec}) electrical energy is released to the converter output (OUT1, OUT2). The electrical converter (1) has a control device (4) comprising: a current sensing device (5) connected to the current sensing device for controlling the duration of at least one of said stroke periods such that the current flowing to the electrical energy storage device (2) during the primary and secondary stroke is substantially equal to or lower than a predetermined maximum current; and a second time control device (41-43) for controlling the duration of an off-time period (t_{off}) in which the electrical energy storage device (2) releases substantially no electrical energy, such that a time average of the current flowing to the electrical energy storage device (2) is equal to a predetermined value, which time average is the average over a switching period comprising the primary stroke period (t_{prim}), the secondary stroke period (t_{sec}), and the off-time period (t_{off}).

WO 2004/066479 A1